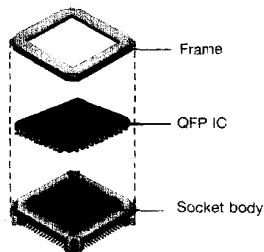
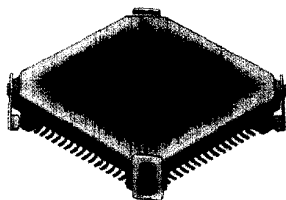


NAIS

IC SOCKETS FOR QUAD FLAT PACKAGE

QFP SOCKETS



mounting is possible even if the socket is used.

5. Compatibility with automatic placement machine:

Socket with open flat tops are compatible with suction-type automatic placement machines.

FEATURES

1. Requires no pattern changes when directly mounting an QFP IC

The foot patterns of QFP IC chips and of the socket are identical. Thus, the sockets can be used from prototyping to initial production, and during actual production the IC chips can be directly mounted to the PC board without any changes to the PC board patterns.

2. Achieves a socket height of 4.8mm

3. Soldered spots are protected:

The anti-exfoliation metal protects soldered spots from external stresses. A special tool is also used to remove the frame without causing stress to soldered spots.

4. Space saving

The socket occupies an area only 1.49 times the size of the IC. High density

APPLICATIONS

1. For initial production (prototyping to initial production stages, which use sockets for fast production of a new product)

2. For functional upgrades (situations requiring ROM replacement or LSI chip replacement)

3. For LSI replacement in case of trouble.

SPECIFICATIONS

1. Characteristics

	Item	Specifications	Conditions		
Electrical characteristics	Rated current	0.2A	—		
	Insulation resistance	Min. 1000MΩ	Using 500V DC megger		
	Contact resistance	Max. 50mΩ	Measured with YHP4328A. Does not include conductor resistance of IC leads.		
Mechanical characteristics	Shock resistance	981m/s ² {100G} (3 axes)	After carrying current (max. 100mA) during the test, no interruption of current longer than 1 μs does not occur.		
Environmental characteristics	H ₂ S	After test, contact resistance max. 50mΩ	After 48 hours of exposure to humidity 75 to 80% R.H., temperature 40°C±2°C, concentration 3±1 ppm		
	SO ₂	After test, contact resistance max. 50mΩ	After 48 hours of exposure to humidity 90 to 95% R.H., temperature 40°C±2°C, concentration 10±3ppm		
	Humidity	After test, contact resistance max. 50mΩ, insulation resistance min. 100MΩ	After 96 hours of exposure to humidity 90 to 95% R.H., temperature 40±2°C		
	Thermal shock resistance	After test, contact resistance max. 50mΩ, insulation resistance min. 100MΩ	After 5 cycles where 1 cycle consists of steps 1 to 4		
			Step	Temperature (°C)	Time (minutes)
			1	-55 ⁺³ ₋₅	30
			2	25 ⁺¹⁰ ₋₅	Maximum 5
	3	85 ⁺³ ₋₅	30		
4	25 ⁺¹⁰ ₋₅	Maximum 5			
Operating temperature	-55°C to +85°C	No freezing at low temperatures, Humidity: Max. 85% R.H.			
Soldering heat resistance	Peak temperature of 245°C	Infrared reflow soldering			
	300°C within 5 seconds	Soldering iron			

2. Materials and Surface Treatment

Part name		Material	Surface treatment
Molded plastic part	Body	Glass reinforced PPS resin (UL94V-0)	—
	Frame	Glass reinforced PPS resin (UL94V-0)	—
Metal part	Contact	Copper alloy	Solder plating over Ni for contact, solder plating over Ni for terminal
	Holder	Copper alloy	Solder plating over Ni

Ordering Information by Package Style

QFP IC sockets are available in the following package types to prevent possible terminal damage in transit:

1. Pack Package for a Single Set (Standard)

1) The part number should be suffixed with the letter "C".

No. of contacts	Part No.	Packing quantity	
		Pack	Outer box
64	Standard socket	1 pc. (1 socket & 1 frame)	200 pcs. (200 packs)
	Socket for NEC's IC		
80	Standard frame		
	Frame for Mitsubishi		

2. Tray Package (Standard)

1) Suffix ordering number with letter "T".

2) Minimum ordering quantity: Single inner box.

No. of contacts	Part No.	Packing quantity	
		Tray	Outer box
64	Standard socket	50 sets	300 sets
	Socket for NEC's IC	50 sets	300 sets
80	Standard socket	40 sets	200 sets
	Socket for Mitsubishi	40 sets	200 sets

3. Frame (replacement part)

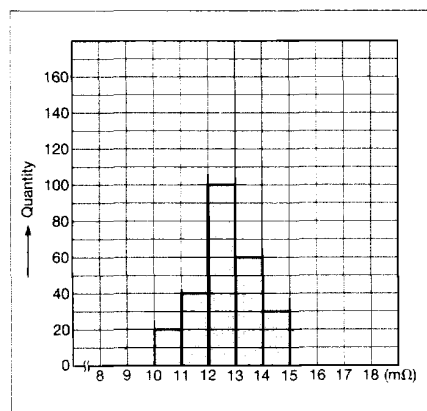
No. of contacts	Part No.	Packing quantity	
		Vinyl bag	Outer carton
64	Standard socket	50 pcs.	300 pcs.
	Socket for NEC's IC	50 pcs.	300 pcs.
80	Standard socket	40 pcs.	200 pcs.
	Socket for Mitsubishi	40 pcs.	200 pcs.

Note: Frames are available in a standard vinyl package. Minimum ordering quantity is 50 pcs./bag.

DATA

1. Distribution of initial contact resistance

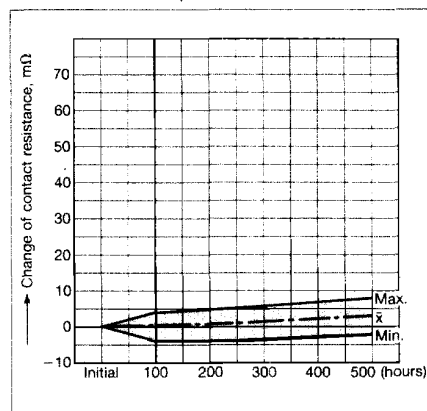
Sample: 256 terminals



2. Heat resistance test (body and frame are mated)

Sample: 128 terminals

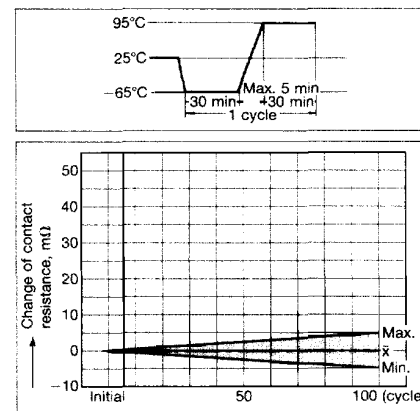
Conditions: Ambient temperature $95^{\circ}\text{C} \pm 2^{\circ}\text{C}$



3. Thermal shock test (body and frame are mated)

Sample: 128 terminals

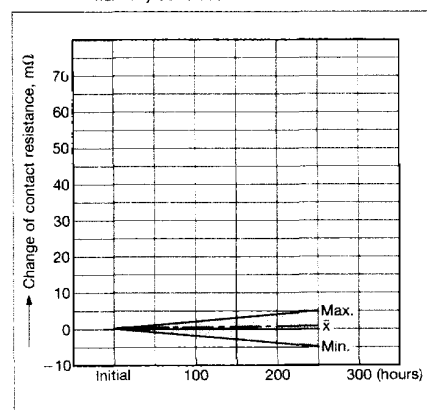
Conditions: As shown in figure below



4. Humidity test (body and frame are mated)

Sample: 128 terminals

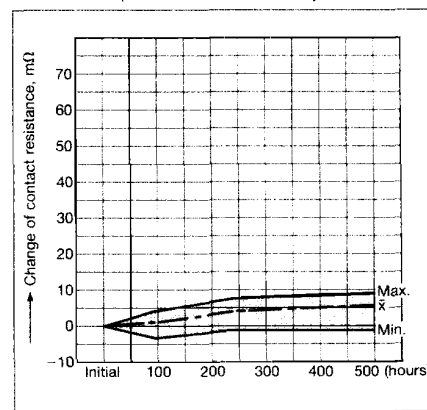
Conditions: Ambient temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity 90 to 95% R.H.



5. SO₂ test (body and frame are mated)

Sample: 128 terminals

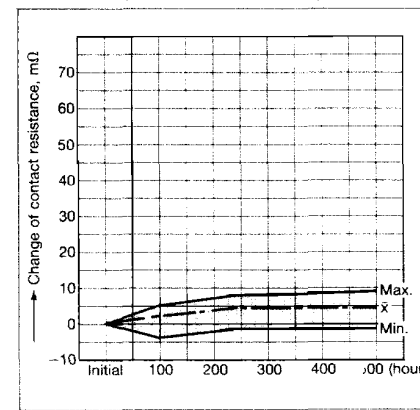
Conditions: Gas concentration $10\text{ ppm} \pm 3\text{ ppm}$, temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity 90 to 95% R.H.



6. H₂S test (body and frame are mated)

Sample: 64 contacts

Conditions: Gas concentration $3\text{ ppm} \pm 1\text{ ppm}$, temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity 75 to 80% R.H.



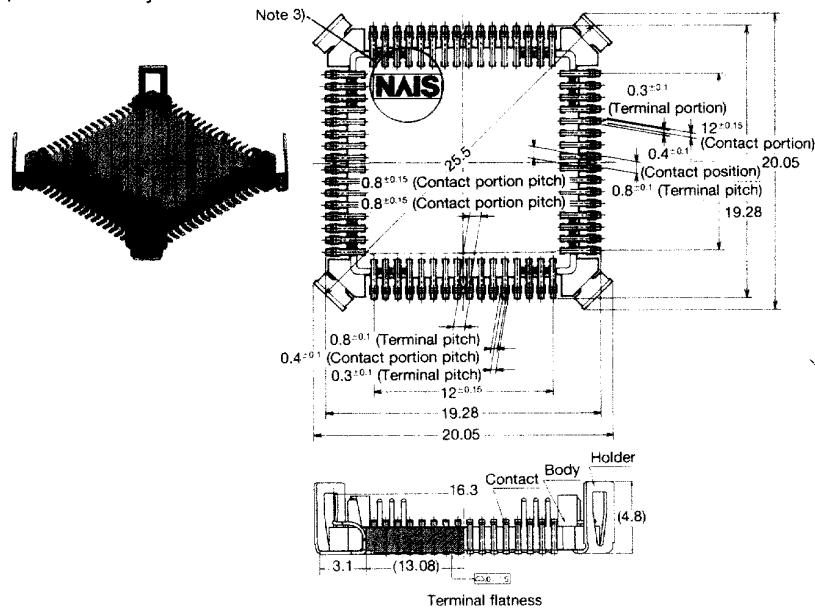
AXS(4)

DIMENSIONS (Unit: mm)

mm General tolerance: ± 0.3

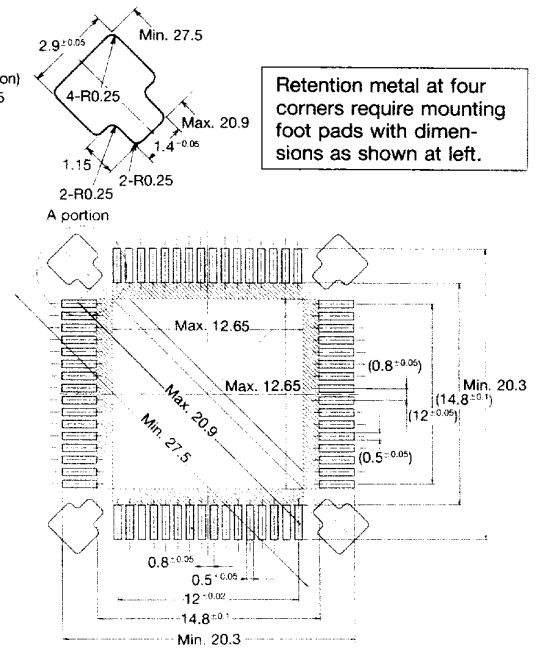
● 64 contacts

1) Socket body



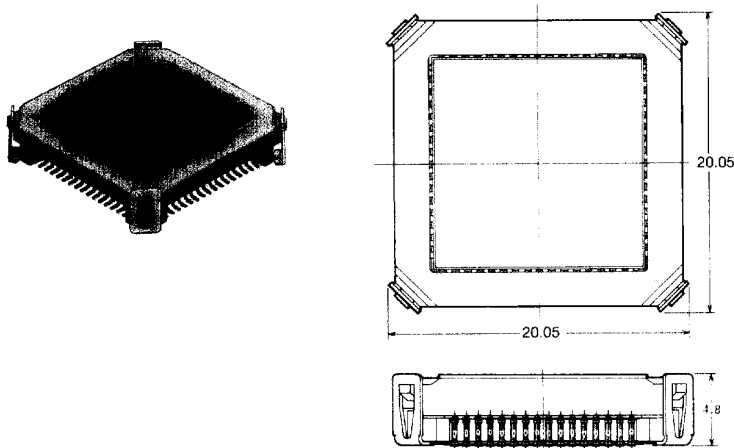
Recommended PC board pattern (TOP VIEW)

Detail picture of A portion



- Notes: 1. Retention metal at four corners should be soldered with sufficient amount of solder.
2. Since the shaded region of the IC socket contacts touch the PC board, take great care that pattern wiring does not short different IC terminals. (Through holes are not possible.)

2) IC chip mounted on socket body

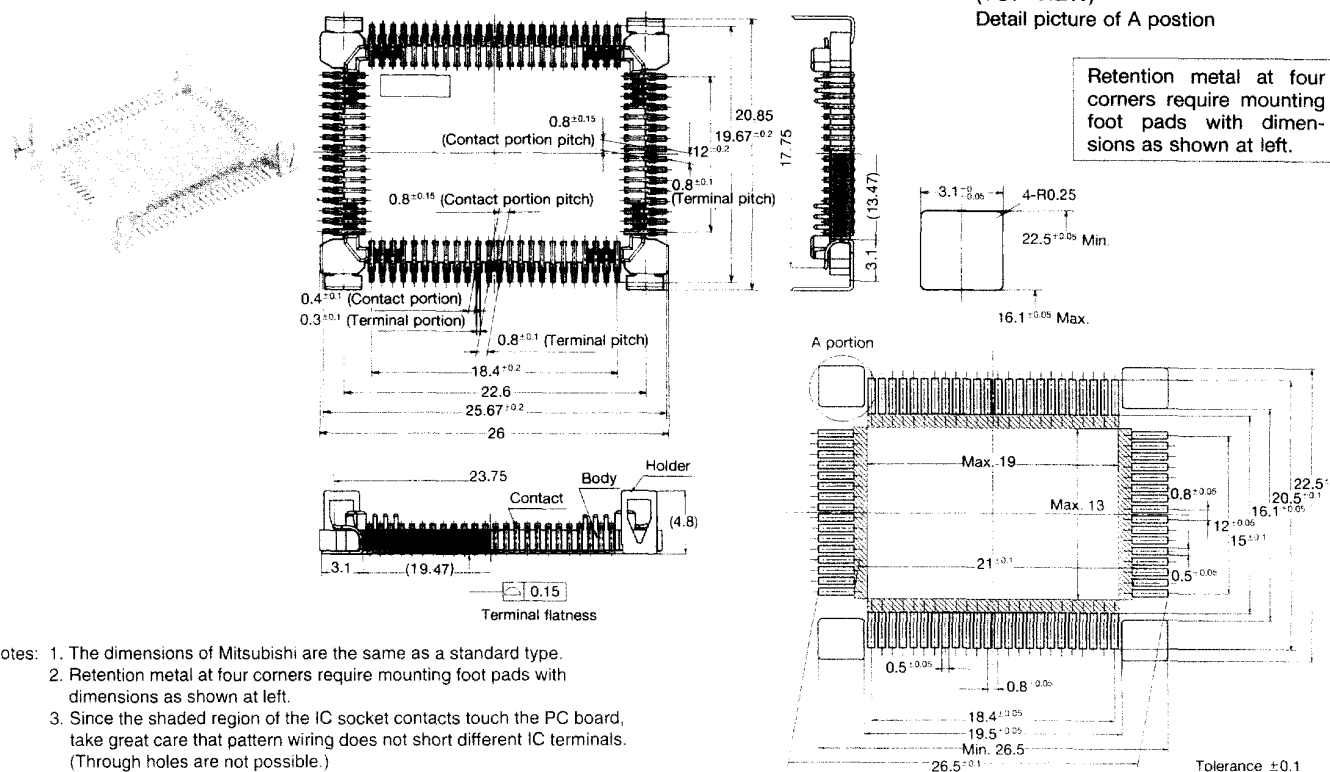


Note) The same socket, with dimensions above, is used for standard and NEC frames.

● 80 contacts

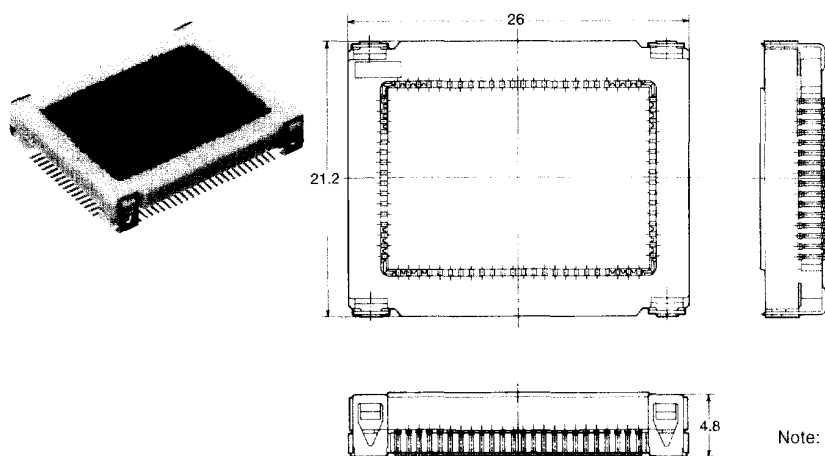
mm General tolerance ± 0.3

1) Socket body



- Notes: 1. The dimensions of Mitsubishi are the same as a standard type.
2. Retention metal at four corners require mounting foot pads with dimensions as shown at left.
3. Since the shaded region of the IC socket contacts touch the PC board, take great care that pattern wiring does not short different IC terminals. (Through holes are not possible.)

2) IC chip and frame mounted on socket body



Note: As to improve the product, specification may subject to change. Please consult us.

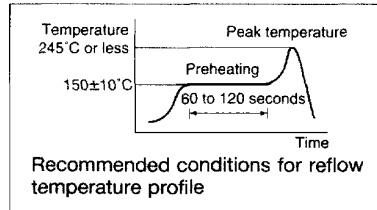
Vendor-Classified Compatibility List for QFP IC Sockets

No. of contacts	Pitch	IC manufacture	
64	0.8	Standard frame	MOTOROLA IC (840B-01) HITACHI (FP-64A)
		Frame for NEC's IC	NEC (P64GC-80-AB8-3) MITSUBISHI (64P6N-B, 64P6N-A)
80	0.8	Standard frame	NEC (P80G80-12-2, P80G-80-IC-2) HITACHI (FP-80, FP-80-B)
		Frame for Mitsubishi	MITSUBISHI (80P6N-C, 80P6-B) FUJITSU (FPT-80P-M06) SANYO (3044B) TOSHIBA (QFP80-P-1420, QFP80-P-1420A, QFP80-P-1420C, QFP80-P-1420B)
			MITSUBISHI (80P6N-A, 80P6-D)

Note: IC compatibility list is current at Aug. 95. Please contact us for other IC types.

NOTES

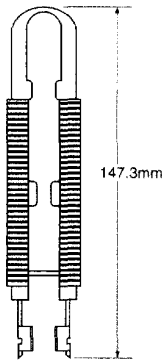
1. Use a screen thickness of 0.2mm or 0.3mm during cream solder printing.
2. Perform soldering using infrared reflow at a peak surface temperature of the PC board not to exceed 245°C. Recommended conditions for the reflow temperature profile are shown in the figure below.



3. If the IC's pin pitch is uneven, it might not fit into the socket or the IC may become damaged. Check the IC's pin pitch before insertion.
4. Check that the contacts are clean before mounting. Poor contact may result if the socket contacts are dirty or oxidized.
5. Do not pull the pins with unreasonable force before soldering. Doing so may cause them to slip out.
6. Do not bend the socket pins (e.g. by dropping them). Doing so may break the pins.

7. When fitting the frame after the IC has been mounted on the socket, press down on the frame until its four tabs lock with the frame holders on the socket body.

FRAME REMOVAL TOOL



FEATURES

1. Removes the frame within a confined space.

The tool is designed to remove the frame directly from above, and can be used even if the QFP IC socket is surrounded by many devices and there is no room for your fingers.

2. Protects the soldered parts.

The frame can be removed without subjecting the soldered parts to external force.

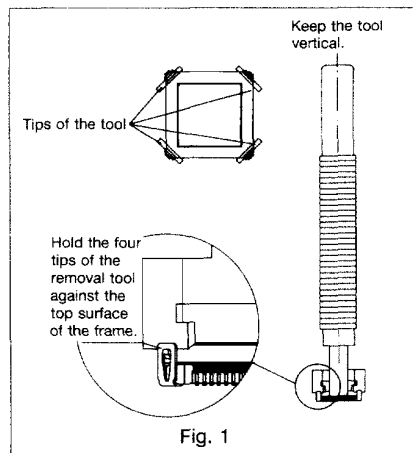
TYPE

No. of contacts	Part No.
64	AXY8564R1
80	AXY8580N1

Note) Packing style: 1 pc. for each outer carton.

OPERATION

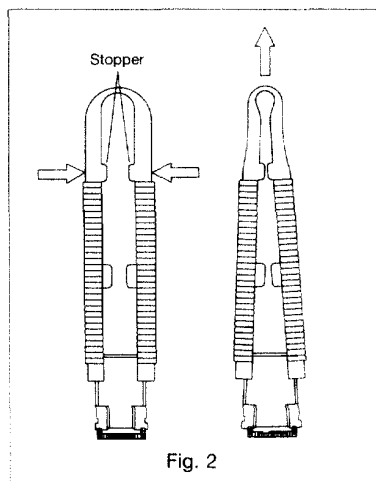
- 1) As shown in the figure 1, position the four tips of the removal tool on the inside of the frame holders of the QFP IC socket so that they touch the top of the frame.



- Next, push the arms apart with the removal tool. If the removal tool is skewed, the frame holders will not all be released and the frame will not detach since there is very little

space for the frame holders. Try to keep the removal tool as straight as possible.

- 2) As shown in the figure 2, squeeze the handles (arrows) until the stoppers touch. The frame holders will unlock from the tabs on the socket frame. Quickly lift the tool straight upwards and separate it from the IC socket.



- Squeeze only the part of the handles indicated by the arrows. Squeezing any other part will push the frame holders too far apart and may deform the frame.
 - Release the tool in a vertical direction. Otherwise, some of the frame holders will lock back onto the frame tabs and prevent removal.
- 3) Next, lift up the frame by hand and remove it.
 - The frame can be removed without problem as long as a minimum of three of the socket frame tabs are released from the frame holders.
 - If only two tabs are released, use tweezers to unlock one of the other two tabs. Be careful not to bend the frame holders.

NOTES

- 1) Do not drop the tool. Doing so may deform the tips.
- 2) Be careful not to poke yourself with the tips of the tool.